Air Sampling Report

Iowa City Former Manufactured Gas Plant Site

505 East Burlington Street
Iowa City, Iowa

Final
May 2022
21553.13.00

Stanley Consultants INC.

Table of Contents

TABLES

APPENDICES

Section 1

Introduction and Background

The following Air Sampling Report was prepared for the former Iowa City Manufactured Gas Plant Site, also known as the Iowa-Illinois Manor LLC, located at 505 East Burlington Street, Iowa City, Iowa (Site). This report was prepared on behalf of Iowa-Illinois Square LLC as required by Consent Decree from the US Environmental Protection Agency (EPA). The site Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) identification number is IAD984591172.

The Iowa-Illinois Manor apartment building is located on the site of a former manufactured gas plant (FMGP) that was operated by a predecessor of MidAmerican Energy from 1857 until approximately 1937. During the 1983 construction activities of the apartment building, materials and odors, later identified as being related to coal gasification waste, were encountered. The building foundation includes a liner under a portion of the building and a passive venting system in the crawl space. The EPA began investigations of the Site in 1998. A Record of Decision (ROD) was signed on September 26, 2006, with a Memorandum of Record dated June 17, 2008. A Consent Decree was entered in the Southern District Court of Iowa. The settling defendants include MidAmerican Energy Company and Iowa-Illinois Manor LLC, which divided the work to be performed and will submit separate reports.

According to the ROD, several rounds of air sampling were conducted at the Site during the Site Characterization and Remedial Investigation (RI). Samples were collected inside and outside of the apartment building. EPA decided to focus on air samples collected from the apartment crawl space for air quality, which would be an indication of the liner integrity and effectiveness of the passive venting system, rather than collecting samples from the apartments, which could have interference from materials stored or used in the apartments and therefore may not necessarily represent conditions resulting from the FMGP site.

Air sampling in the building's crawl space and reporting of the sampling results has been conducted annually since 2010. In February 2015, the EPA completed a five-year review of the remedy for the Site. EPA noted that it had revised vapor intrusion sampling guidance pertaining to vapor intrusion sampling and established an attenuation factor (Health Index [HI]) of 1.0 (previous HI was 0.01) which affected the performance standard at this site. Revisions to the Air Monitoring Program (AMP) plan, the Quality Assurance Project Plan (QAPP) for Air Monitoring, and the Draft Operation and Maintenance (O&M) Plan were completed in January 2016 to reflect these changes to performance standards and analytical methods.

1.1 Objective

The Remedial Action Objective (RAO) for air monitoring set forth in the ROD is to "prevent and/or reduce future human exposure to indoor air contaminants of concern (COCs) that exceed health-based levels". The RAO for indoor air is to be achieved through periodic air monitoring and implementation of an environmental covenant requiring maintenance and monitoring of the existing venting system and subsurface liner under the Iowa-Illinois Manor apartment building.

This Sampling Report includes air monitoring results for two COCs; benzene and naphthalene. Benzene and naphthalene were compared to the most recent version of the EPA Regional Screening Levels (RSLs) of 0.36 micrograms per cubic meter of air ($\mu g/m^3$) for benzene and 0.083 $\mu g/m^3$ for naphthalene, which are used as performance standards for air monitoring at this Site. The levels of benzene and naphthalene that would warrant taking action (action levels) would be concentrations that exceed 31 $\mu g/m^3$ (HI=1) for benzene and 3.1 $\mu g/m^3$ for naphthalene (HI=1). EPA determined that if air samples collected from the crawl space beneath the building did not exceed the action levels for benzene and naphthalene, it would be assumed that the indoor air would not pose an unacceptable level of risk to residents of the apartment building. See Table 3-1 in Section 3 for a summary of sampling results.

1.2 Distribution List

Copies of the Sampling Report at the Iowa City FMGP Site will be distributed to the following individuals:

Iowa-Illinois Square LLC	Bryan Clark, Project Coordinator
Stanley Consultants, Inc.	Tim Rohlf, Project Manager
	Julie Oriano, QA/QC Reviewer
Iowa Department of Natural Resources	Matt Culp, State Project Coordinator
EPA Region 7	Bill Gresham, Project Manager

1.3 Schedule

Air monitoring will continue on an annual basis until the Consent Decree is terminated or until the schedule is modified as per the terms of the Consent Decree.

Section 2

Sampling Activities

2.1 Air Sampling Locations

Air sampling activities were conducted on March 31-April 1, 2022. Stanley Consultants, Inc. (Stanley Consultants) collected air samples from three locations in the crawl space beneath the building situated from north to south. Air sample locations are identified on the site plan included in Appendix A as Crawl SP-N, Crawl SP-C, and Crawl SP-S; these samples were labeled as north, central, and south, respectively, on the chain-of-custody and in the laboratory reports. A duplicate air sample was collected from the Crawl SP-C location. The duplicate canister was placed side-by-side with the Crawl SP-C canister. The sample tubing at this location was split with a "T-connector" to allow air to simultaneously flow into the two canisters.

2.2 Air Sampling Methods

Air samples were collected by Stanley Consultants according to the QAPP for Air Monitoring at the Iowa City FMGP Site, Revision 1, January 2016.

Eurofins TestAmerica, Inc. provided Stanley Consultants with four, six-liter (6L) passivated stainless-steel canisters. The sampling train consisted of a Summa® passivated stainless-steel canister, vacuum gauge, flow controller, and sampling inlet (stainless steel tubing) that was certified clean by Eurofins TestAmerica, Inc. Eurofins TestAmerica, Inc. also prepared the sampling train and set the flow controllers to collect samples at a flow rate of approximately three milliliters per minute (mL/min) for a period of 24 hours. Trenton Humphrey, E.I.T. of Stanley Consultants inspected the flow train for damage upon receipt and documented the cleaning certifications. The canisters were stored in their shipping containers in a secure location until they were taken to the Site.

Field staff for the set-up and sampling included Trenton Humphrey, E.I.T and James O'Shea of Stanley Consultants. Mr. Humphrey inspected the sampling train at the Site for damage, assembled the train, and placed the canisters in the crawl space at the three sampling locations (Crawl SP-N

(North), Crawl SP-C (Central), and Crawl SP-S (South)). The initial vacuum of the canisters was approximately -30 inches (in) mercury (Hg). The value of initial vacuum, final vacuum, and ambient weather conditions during deployment and collection were recorded in the field book. The canisters were opened while in the crawl space, between approximately 8:02 am and 8:18 am on March 31, 2022. Mr. Humphrey exited the crawl space shortly after opening the canisters and locked the access doors immediately after exiting. The doors were locked so that the canisters would remain undisturbed during the sampling event. Field notes from the sampling event are included in Appendix D.

The 24-hour sampling period was completed on April 1, 2022, between approximately 7:40 am to 7:46 am. The final vacuum in the canisters were between -8.0 and -0.1 in Hg.

After the samples were collected on March 31-April 1, the canisters were packed with the chain-of-custody into shipping containers provided by the laboratory. The samples were shipped to the Eurofins TestAmerica Inc. laboratory located in Sacramento, California. Eurofins TestAmerica evaluated the canisters upon receipt on April 6, 2022, and although there was a vacuum of -0.1 in of mercury recorded at Crawl SP-N, the final canister vacuum was measured at ambient pressure at the laboratory. No other issues were noticed with the canister condition as described in the Laboratory Narrative of the reports, provided in Appendix C.

On March 31-April 1, 2022, meteorological conditions in Iowa City during the sample setup and collection period were in the following ranges: ambient air temperature was from 32 – 33 degrees Fahrenheit (°F) with a humidity value ranging from 77 to 82 percent.

Section 3

Laboratory Results

3.1 Air Sampling Analysis

The air samples were analyzed for benzene and naphthalene using EPA Method TO-15 SIM which uses Gas Chromatography/Mass Spectrometry (GC/MS). The laboratory Reporting Limit (RL) for the sample volume (6L) ranged from 0.17-0.23 $\mu g/m^3$ for benzene and 0.28-0.38 $\mu g/m^3$ for naphthalene. The Method Detection Limit (MDL) for benzene ranged from 0.044-0.058 $\mu g/m^3$ and 0.021-0.028 $\mu g/m^3$ for naphthalene. The MDLs are adequate for assessing the crawl space performance standards for benzene and naphthalene.

Benzene was detected in the four samples (North, South, Central, and Duplicate) collected from the crawl space at concentrations below the action level of 31 $\mu g/m^3$, with three of them above the screening level of 0.36 $\mu g/m^3$. The Crawl SP-N sample had a concentration of 0.42 $\mu g/m^3$, the Crawl SP-S sample had a concentration of 0.40 $\mu g/m^3$, and the duplicate sample (duplicate of Crawl SP-C) had a concentration of 0.43 $\mu g/m^3$. The Crawl SP-C had a concentration of 0.35 $\mu g/m^3$ which is below the screening level of 0.36 $\mu g/m^3$.

Naphthalene was detected in the four samples (North, South, Central, and Duplicate) collected from the crawl space at concentrations below the action level of 3.1 $\mu g/m^3$ and below the screening level of 0.083 $\mu g/m^3$.

Table 3-1 summarizes the laboratory findings. The laboratory data report is included in Appendix C.

Table 3-1 Laboratory Results

Sample ID	Sample Date	Start Time (24 hr. collection)	Parameter (µg/m³)	
			Benzene	Naphthalene
CRAWL SP-N	March 15-16, 2010	11:00	<0.64	<2.6
CRAWL SP-N	March 10-11, 2011	08:40	0.65	<2.6
CRAWL SP-N	March 15-16, 2012	11:00	0.68	<2.6
CRAWL SP-N	March 12-13, 2013	11:15	<0.64	<2.6
CRAWL SP-N	March 13-14, 2014	10:50	0.60	<2.6
CRAWL SP-N	March 25-26, 2015	9:40	0.62	<2.6
CRAWL SP-N	March 22-23, 2016	9:25	0.47	<0.052
CRAWL SP-N	March 30-31, 2017	15:17	0.34	0.061[1, J]
CRAWL SP-N	March 19-20, 2018	11:25	0.32	<0.052
CRAWL SP-N	March 20-21, 2019	9:35	0.27	<0.052
CRAWL SP-N	March 17-18, 2020	9:22	0.29	0.11[1,J]
CRAWL SP-N	March 24-25, 2021	11:04	0.33	0.060[J]
CRAWL SP-N	March 31-April 1, 2022	8:02	0.42[1]	0.049[J]
CRAWL SP-C	March 15-16, 2010	10:49	<0.64	<2.6
CRAWL SP-C	March 10-11, 2011	08:35	0.81	<2.6
CRAWL SP-C	March 15-16, 2012	11:05	0.81	<2.6
CRAWL SP-C	March 12-13, 2013	11:20	<0.64	<2.6
CRAWL SP-C	March 13-14, 2014	10:55	0.81	<2.6
CRAWL SP-C	March 25-26, 2015	9:45	0.53	<2.6
CRAWL SP-C	March 22-23, 2016	9:30	0.55	<0.052
CRAWL SP-C	March 30-31, 2017	15:19	0.33	0.059[1, J]
CRAWL SP-C	March 19-20, 2018	11:40	0.36	0.076
CRAWL SP-C	March 20-21, 2019	9:45	0.22	<0.052
CRAWL SP-C	March 17-18, 2020	9:24	0.30	0.079[1,J]
CRAWL SP-C	March 24-25, 2021	11:06	0.29	0.064[1,J]
CRAWL SP-C	March 31-April 1, 2022	8:07	0.35[1]	0.056[J]
CRAWL SP-S	March 15-16, 2010	10:43	<0.64	<2.6
CRAWL SP-S	March 10-11, 2011	08:30	0.74	<2.6
CRAWL SP-S	March 15-16, 2012	11:10	0.79	<2.6
CRAWL SP-S	March 12-13, 2013	11:25	0.66	<2.6
CRAWL SP-S	March 13-14, 2014	11:00	1.0	<2.6
CRAWL SP-S	March 25-26, 2015	9:50	0.46	<2.6
CRAWL SP-S	March 22-23, 2016	9:40	0.51	<0.052
CRAWL SP-S	March 30-31, 2017	15:21	0.42	<0.052
CRAWL SP-S	March 19-20, 2018	11:50	0.38	0.064[J]
CRAWL SP-S	March 20-21, 2019	9:42	0.33	ND
CRAWL SP-S	March 17-18, 2020	9:27	0.36	0.072[1,J]
CRAWL SP-S	April 8-9, 2021	8:45	0.29	0.095[1,J]

Sample ID	Sample Date	Start Time (24 hr. collection)	Parameter (µg/m³)	
			Benzene	Naphthalene
CRAWL SP-S	March 31-April 1, 2022	8:18	0.40[1]	0.062[J]
DUPLICATE (CRAWL SP-S)	March 15-16, 2010	10:47	<0.64	<2.6
DUPLICATE (CRAWL SP-S)	March 10-11, 2011	08:30	0.75	<2.6
DUPLICATE (CRAWL SP-C)	March 15-16, 2012	11:05	0.85	<2.6
DUPLICATE (CRAWL SP-N)	March 12-13, 2013	11:15	<0.64	<2.6
DUPLICATE (CRAWL SP-N)	March 13-14, 2014	10:50	0.58	<2.6
DUPLICATE (CRAWL SP-C)	March 25-26, 2015	9:45	0.43	<2.6
DUPLICATE (CRAWL SP-S)	March 22-23, 2016	9:40	0.53	<0.052
DUPLICATE (CRAWL SP-S)	March 30-31, 2017	15:21	0.51	0.090[1]
DUPLICATE (CRAWL SP-C)	March 19-20, 2018	11:40	**0.35**	0.071
DUPLICATE (CRAWL SP-N*)	March 20-21, 2019	9:35	0.28	<0.052
DUPLICATE (CRAWL SP-S*)	March 17-18, 2020	9:24	0.35	0.065[1,J]
DUPLICATE (CRAWL SP-S*)	April 8-9, 2021	8:45	0.29	0.075[1,J]
DUPLICATE (CRAWL SP-C*)	March 31-April 1, 2022	8:07	0.43[1]	0.033[J]
Laboratory Reporting Limits before 2016			**0.64**	**2.6**
Performance Standards before 2016			**80**	**5.6**
Current Laboratory Reporting Limits (*Method Detection Limits*)			**0.044-0.058[2]**	**0.021-0.028[2]**
Current Performance Standards			**0.36**	**0.083**
Current Action Levels			**31**	**3.1**

Notes: TestAmerica's quality control consisted of a laboratory control sample, method blank and clean canister certification chromatograms.
1 Compound was found in the blank and the sample
2MDLs in 2022 lab report vary based on dilution factors
* - Duplicate and Crawl samples were collected at the same time/location with the laboratory provided flow splitter
J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
ND (if shown) = <0.046-0.049 µg/m³, the laboratory MDL for naphthalene.

Section 4

Site Inspection

4.1 Site Inspection

During the air sampling event, the crawl space ventilation system and the cover material on the building liner were inspected by Trenton Humphrey, E.I.T and James O'Shea of Stanley Consultants. The crawl space ventilation system consists of 4-in. diameter perforated polyvinyl chloride (PVC) pipes crossing the entire width of the building, and louvered vents placed in the foundation walls approximately 20 to 25 feet apart. The piping system is surrounded with gravel, and a 20-mil PVC membrane covers the gravel. Approximately two inches of fill material was placed over the liner for protection from foot traffic in the crawl space. The PVC pipes pass through the foundation walls and connect to risers with rain caps. The access door to the crawl space remains locked during the year.

In the crawl space, the gravel and liner were inspected for disturbance, liner exposure, moisture, stains, odors and proper depth. No damage to the crawl space floor was apparent during the inspection, and no obvious holes or defects were observed in the PVC membrane.

On the outside of the building, all louvers and venting pipe were observed to be clear of obstructions and in proper operating condition. The risers and rain caps were inspected and were in proper functional condition.

On March 31, 2022, there were no observed potential interferences to instrument readings (nearby running cars, generators, etc.) identified on-site during the inspection.

Section 5

Conclusions and Recommendations

5.1 Conclusions

Benzene concentrations were detected above RLs at all three sample locations and although benzene concentrations were above the EPA performance standards of 0.36 µg/m^3, benzene levels were less than the EPA action level of 31 µg/m^3 in the four crawl space air samples. Additionally, the laboratory blank for benzene had a reported concentration of 0.054 µg/m^3, which is above the MDL but below the RL. The levels of benzene are within an acceptable cancer risk range and noncancer health index. Naphthalene was not detected in levels below the RL but were detected above the MDL. All four samples were below both the EPA performance standard of 0.083 µg/m^3 for naphthalene and below the EPA action level of 3.1 µg/m^3 for naphthalene. All results for napthalene are estimated because they are above the MDL and below the RL.

No deficiencies and/or the need for maintenance in the crawl space ventilation or building liner systems were identified.

Air sampling at this Site is conducted to monitor exposures to the air in the apartment building from site contamination caused by petroleum. Although low concentrations of benzene and naphthalene were detected in the air samples, the concentrations were below the EPA action levels which would pose a risk to site residents.

5.2 Recommendations

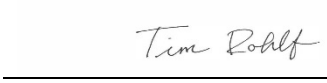
Stanley Consultants recommends no changes to the air monitoring frequency and no corrective action is required at this time. Air monitoring should continue on an annual basis until the Consent Decree is terminated or until the schedule is modified as per the terms of the Consent Decree.

Section 6

Signatures of Environmental Professionals

Respectfully Submitted,

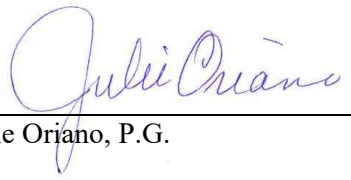
Stanley Consultants, Inc.

Prepared by 

Tim Rohlf, E.I.T.

Reviewed by 

Trenton Humphrey, E.I.T

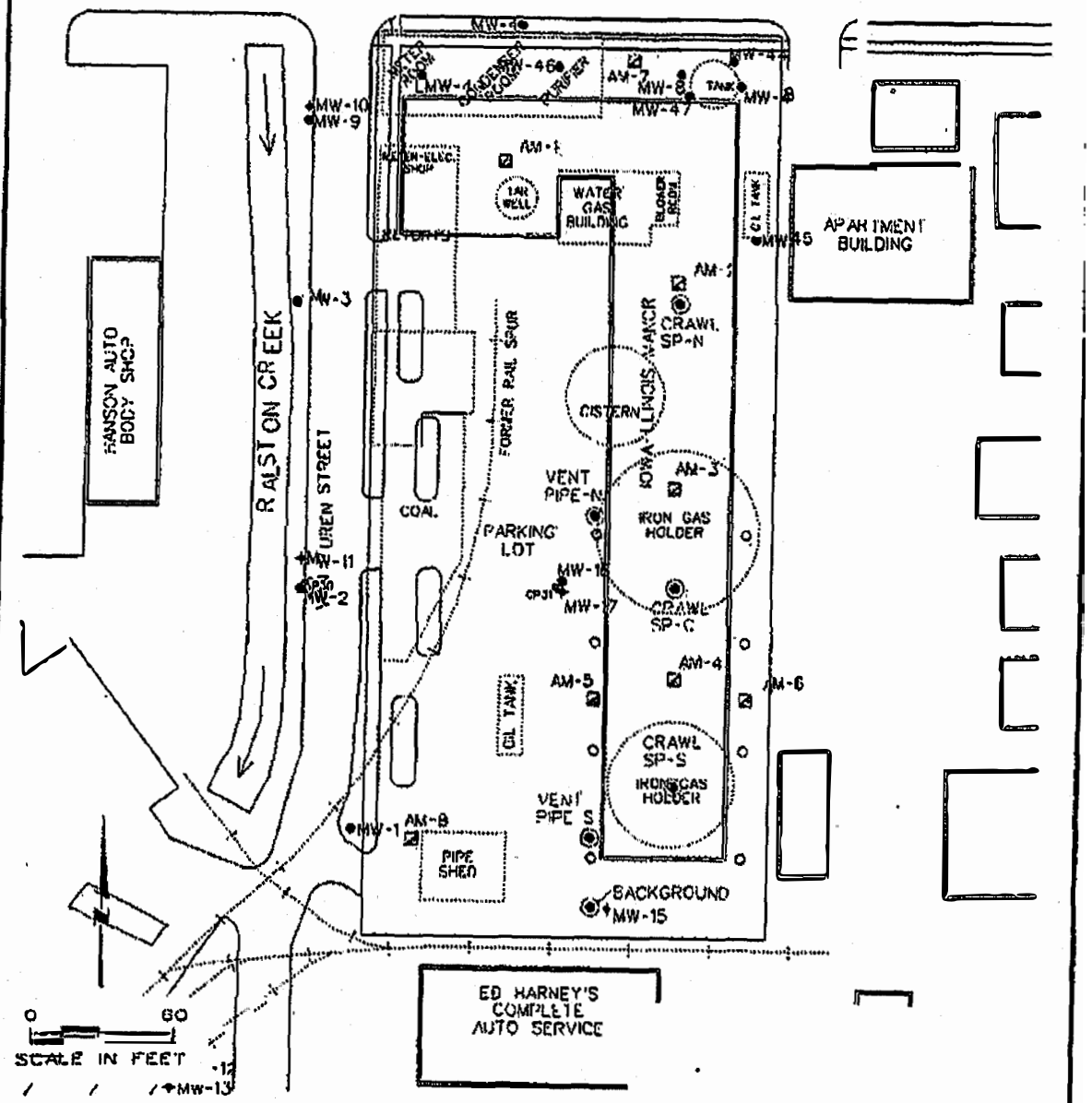
Approved by 

Julie Oriano, P.G.

Appendix A

Site Figure

Figure 4



MWH Des Moines Iowa	MIDAMERICAN ENERGY COMPANY FORMER MANUFACTURED GAS PLANT SITE IOWA CITY, IOWA	AIR SAMPLING LOCATIONS	FIGURE 4

Appendix B

Photographs

Photo 1: Observation of crawl space before sample collection.

Photo 2: Louver on Site that is maintained and was observed free of debris during sample collection.

Photo 3: Passive ventilation system components at the building that was maintained with minor debris nearby.

Photo 4: Typical vent and louver seen at the south partition of crawl space.

Photo 5: View of North sampling location and canister.

Photo 6: View of Central sampling location.

Photo 7: View of sampling train for Central sample and duplicate.

Photo 8: View of North sampling location.

Appendix C

Laboratory Reports

eurofins | Air Toxics

4/19/2022
Mr. Trenton Humphrey
Stanley Consultants, Inc.
2658 Crosspark Road - Suite 100

Coralville IA 52241-3212

Project Name: Iowa/Illinois Manor
Project #: 21553.13
Workorder #: 2204282

Dear Mr. Trenton Humphrey

The following report includes the data for the above referenced project for sample(s) received on 4/6/2022 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by Modified TO-15 SIM are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Brian Whittaker

Project Manager

eurofins | Air Toxics

WORK ORDER #: 2204282

Work Order Summary

CLIENT:	Mr. Trenton Humphrey Stanley Consultants, Inc. 2658 Crosspark Road - Suite 100 Coralville, IA 52241-3212	**BILL TO:**	Mr. Trenton Humphrey Stanley Consultants, Inc. 2658 Crosspark Road - Suite 100 Coralville, IA 52241-3212
PHONE:	319.626.5321	**P.O. #**	
FAX:		**PROJECT #**	21553.13 Iowa/Illinois Manor
DATE RECEIVED:	04/06/2022	**CONTACT:**	Brian Whittaker
DATE COMPLETED:	04/19/2022		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	Duplicate	Modified TO-15 SIM	6.5 "Hg	1.9 psi
02A	North	Modified TO-15 SIM	0.2 psi	1.5 psi
03A	Central	Modified TO-15 SIM	6.5 "Hg	1.9 psi
04A	South	Modified TO-15 SIM	6.7 "Hg	1.8 psi
05A	Lab Blank	Modified TO-15 SIM	NA	NA
06A	CCV	Modified TO-15 SIM	NA	NA
07A	LCS	Modified TO-15 SIM	NA	NA
07AA	LCSD	Modified TO-15 SIM	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 04/19/22

Technical Director

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209221, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-21-17, UT NELAP – CA009332021-13, VA NELAP - 10615, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005-015, Effective date: 10/18/2021, Expiration date: 10/17/2022.
Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15 SIM
Stanley Consultants, Inc.
Workorder# 2204282

Four 6 Liter Summa Canister (100% SIM Ambient) samples were received on April 06, 2022. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the SIM acquisition mode.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

Requirement	***TO-15***	***ATL Modifications***
ICAL %RSD acceptance criteria	</=30% RSD with 2 compounds allowed out to < 40% RSD	Project specific; default criteria is </=30% RSD with 10% of compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	Project specific; default criteria is </= 30% Difference with 10% of compounds allowed out up to </=40%.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

Despite the use of flow controllers for sample collection, the final canister vacuum for sample North was measured at ambient pressure at the laboratory.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

The following qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

CN- See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS SIM
Iowa/Illinois Manor

Client ID:	Duplicate		
Lab ID:	2204282-01A	**Date/Time Analyzed:**	4/15/22 01:08 AM
Date/Time Collected:	4/1/22 12:00 AM	**Dilution Factor:**	1.44
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msd60.i / 60041417sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.058	0.092	0.23	0.43
Naphthalene	91-20-3	0.028	0.060	0.38	0.033 J

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	107

MODIFIED EPA METHOD TO-15 GC/MS SIM
Iowa/Illinois Manor

Client ID:	North		
Lab ID:	2204282-02A	**Date/Time Analyzed:**	4/15/22 12:24 AM
Date/Time Collected:	4/1/22 07:40 AM	**Dilution Factor:**	1.09
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msd60.i / 60041416sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.044	0.070	0.17	0.42
Naphthalene	91-20-3	0.021	0.046	0.28	0.049 J

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	107

MODIFIED EPA METHOD TO-15 GC/MS SIM
Iowa/Illinois Manor

Client ID:	Central		
Lab ID:	2204282-03A	**Date/Time Analyzed:**	4/15/22 01:53 AM
Date/Time Collected:	4/1/22 07:43 AM	**Dilution Factor:**	1.44
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msd60.i / 60041418sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.058	0.092	0.23	0.35
Naphthalene	91-20-3	0.028	0.060	0.38	0.056 J

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	107

MODIFIED EPA METHOD TO-15 GC/MS SIM
Iowa/Illinois Manor

Client ID:	South		
Lab ID:	2204282-04A	**Date/Time Analyzed:**	4/15/22 02:38 AM
Date/Time Collected:	4/1/22 07:46 AM	**Dilution Factor:**	1.44
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msd60.i / 60041419sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.058	0.092	0.23	0.40
Naphthalene	91-20-3	0.028	0.060	0.38	0.062 J

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	107

MODIFIED EPA METHOD TO-15 GC/MS SIM
Iowa/Illinois Manor

Client ID:	Lab Blank		
Lab ID:	2204282-05A	**Date/Time Analyzed:**	4/14/22 01:05 PM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd60.i / 60041405simc

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.041	0.064	0.16	0.054 J
Naphthalene	91-20-3	0.019	0.042	0.26	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS SIM
Iowa/Illinois Manor

Client ID:	CCV		
Lab ID:	2204282-06A	**Date/Time Analyzed:**	4/14/22 10:32 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd60.i / 60041402sim

Compound	CAS#	%Recovery
Benzene	71-43-2	96
Naphthalene	91-20-3	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	106

MODIFIED EPA METHOD TO-15 GC/MS SIM
Iowa/Illinois Manor

Client ID:	LCS		
Lab ID:	2204282-07A	**Date/Time Analyzed:**	4/14/22 11:17 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd60.i / 60041403sim

Compound	CAS#	%Recovery
Benzene	71-43-2	94
Naphthalene	91-20-3	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	106

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS SIM
Iowa/Illinois Manor

Client ID:	LCSD		
Lab ID:	2204282-07AA	**Date/Time Analyzed:**	4/14/22 12:03 PM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd60.i / 60041404sim

Compound	CAS#	%Recovery
Benzene	71-43-2	93
Naphthalene	91-20-3	99

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	106

* % Recovery is calculated using unrounded analytical results.

eurofins | Air Toxics

Analysis Request /Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 2204282

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Client: Stanley Consultants
Project Name: Iowa/Illinois Manor
Project Manager: Tim Pohlf Project # 21553.13
Sampler: Trenton Humphrey
Site Name: Iowa City, IA

Special Instructions/Notes:
Initial Conditions: 33°F, 91% humidity
Sample collection Conditions: 32°F, 77% humidity

Turnaround Time (Rush surcharges may apply)
Standard X Rush _____(specify)

Lab ID	Field Sample Identification(Location)	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Canister Vacuum/Pressure		Lab Use Only		Requested Analyses			
				Date	Time	Date	Time	Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N_2 / He	Benzene	Naphthalene	(Both analyses by Method TO-15)	SIM VOC by 6010S
01A	Duplicate	6L0712	2148	3/31/22	4/1/22	4/1/22		29.54	6.8			X	X		
02A	North	626375	2150	3/31/22	8:02	4/1/22	7:40	29.49	9.1			X	X		
03A	Central	6L2312	2124	3/31/22	8:07	4/1/22	7:43	29.57	6.8			X	X		
04A	South	6L2393	2130	3/31/22	8:18	4/1/22	7:46	29.49	8.0			X	X		

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
[signature]	4/1/2022	9:00	[signature] EAL	4/6/22	1004
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

Shipper Name: UPS | Custody Seals Intact? | Yes | No | None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

Appendix D

Field Notes

4/1/2022 IA/IL Mancan Sampling Trenton Humphy EIT II, and James Osha environmental Scientist arrived on site @ 07:35am. Outside temperature is 32°F and 77% humidity. Unlocked door to go under building to collect North to South.

Location	Stop time	Final Pressure (in Hg)
North	7:40	0.1 ~~in~~ in Hg Vac
Central	7:43	6.8
Central Dp	7:43	6.8
South	7:46	8.0

Placed Samples in box and Sent Via ups to lab.

4/1/2022

Iowa Illinios Manor 3/31/2022

Trenton Humphrey, EIT II and James O'shea environmental specialist arrived onsite @ 07:00. Ambient Air Temperature is 33 °F and 91% humidity. Walked the site and took photos of building air intakes. No unusual observations. Humphrey and O'shea entered the crawl space @ ___ and Placed Canisters from North to South.

Canister	#	time	Readings
North	6L0375	8:02	29.49
Central	6L2312	8:07	29.57
Central duplicate	6L0712	8:07	29.54
South	6L2343	8:18	29.49

North Field reading @ Shut 20psi

Locked outside door and proceed back to office

3/31/2022